Notice of Allowability	**Application No.** 10/684,116	**Applicant(s)** WREN, CHRISTOPHER R.
	Examiner Juan C. Ochoa	**Art Unit** 2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *6/8/07*.
2. ☒ The allowed claim(s) is/are *1-21*.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
   1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. The amendment filed 6/8/07 has been received and considered. Claims 1–21 are presented for examination.

Allowable Subject Matter

2. Claims 1–21 are allowed over prior art of record.

3. The following is an examiner's statement of reasons for allowance:

4. While Patrick Pirim, (Pirim hereinafter), U.S. Patent 7,136,842, discloses a method for modeling movement of users in an environment (see col. 1, lines 60–65), detecting events due to movement (see col. 22, lines 42–44) of the users at the sensors (see "sensors" as "CMOS imaging devices" in col. 21, lines 51–56 and Figs. 34 and 35), and summing the events for each sensor into a corresponding histogram time interval bin associated with the sensor (see col. 2, lines 18–27),

Stauffer and Grimson, (Stauffer hereinafter), Learning Patterns of Activity Using Real Time Tracking, discloses generating a plurality of co-occurrence matrices from the histograms according to $C_{i,j}, \delta = {}_{t=0}\Sigma^{T} H_{i,t} H_{j,t+\delta}$ (see page 753, col. 2, Section No. 7.3, 1st and 3rd paragraphs and formula (13)), where i and j represent each possible pair of sensors, T is a total time for the detecting (see "C_{total} and Z" in page 753, col. 2, lines 1–20), t represents a particular time, and H represents the histogram time interval bins (see "$p_c()$" in page 753, col. 1, next to last paragraph, lines 3–4),

Lee, Romano, and Stein, (Lee hereinafter), Monitoring activities from multiple video streams: Establishing a common coordinate frame, discloses time-offsets, i.e. δ in the co-occurrence matrices. (see page 761, col. 2, Section No. 4.4, 1st paragraph),

Yaron Caspi and Michal Irani, (Caspi hereinafter), Alignment of non-overlapping sequences, discloses a method in which ranges of some sensors are non-overlapping (see page 5, col. 2, last paragraph, lines 1–6),

Mark Steyvers, (Steyvers hereinafter), Multidimensional Scaling, discloses a method comprising: evaluating a likelihood that a particular geometry conforms to the estimated distances using a stress measure $\Phi = \Sigma [d_{ij}-f(\delta_{ij})]$,where $f(\delta_{ij})$ is a non-metric, monotone transformation (see page 2, col. 1, lines 1–3),

none of these references taken either alone or in combination disclose teach a specifically including:

claims 1 and 19, " generating a plurality of co-occurrence matrices from the histograms according to $C_{i,j}, \delta = {}_{t=0}\Sigma^{T} H_{i,t} H_{j,t+\delta}$ where i and j represent each possible pair of sensors",

in combination with the remaining elements and features of the claimed invention. Also, there is no motivation to combine none of these references to meet these limitations. It is for these reasons that applicant's invention defines over the prior art of record.

Response to Arguments

5. Applicant's arguments filed 6/8/07 have been fully considered and they are persuasive.

6. Regarding the rejection under 103.

7. Applicant argues that the Examiner failed to establish a prima facie case of obviousness. Applicant argues that the Examiner has neither established a motivation to combine (see page 2, next to last paragraph to page 3, 1st paragraph) nor shown a reasonable expectation of success (see page 3, last paragraph to page 4, 1st paragraph). Examiner clearly identified a suggestion or motivation in the combination of Pirim as modified by Stauffer. The Examiner directed Applicant to Stauffer who stated in page 757, col. 1, 3rd paragraph from the bottom, lines 1-3 that his probabilistic method for background subtraction involves modeling each pixel as a separate mixture model. Examiner also directed Applicant to Stauffer's page 757, col. 1, last paragraph which report successful use in tracking people in indoor environments, people and cars in outdoor environments, fish in a tank, ants on a floor, and remote control vehicles in a lab setting; by using different cameras, using different lighting, and tracking different objects, while achieving real-time performance over extended periods of time without human intervention. It is the Examiner's position that either one of these passages would provide clear and adequate suggestion or motivation to combine the teachings of Pirim and Stauffer. Examiner clearly identified a suggestion or motivation in the combination of Pirim-Stauffer as modified by Lee. The Examiner directed Applicant to Lee who stated in page 758, col. 1, Introduction, lines 1-3 that his method models the activity in a large site using video streams from multiple cameras. Examiner also directed Applicant to page 767, col. 1, Conclusions, 2nd paragraph, lines 1-7 which teach improvements over his prior art: an unsupervised method for coordinating the activities detected in a distributed, uncalibrated, set of cameras into a single global

coordinate frame, while using tracking data from moving objects to solve the correspondence problem between cameras and thereby allowing multiple views to be coordinated to a single view or to a global, ground plane view. It is the Examiner's position that either one of these passages would provide clear and adequate suggestion or motivation to combine the teachings of Pirim- Stauffer and Lee. The Examiner would like to point out that the arts, are also considered analogous, as they are related to applications that model activity using video streams, therefore a reasonable expectation of success would be present in the combination of teachings. The Examiner contends that a prima facie case of obviousness has been established and the rejection is proper.

8. Applicant argues, (see page 4, 3rd and 4th paragraphs), that in Pirim "DPijt and Alijt represent adaptable parameters and are not labels". Examiner notes that this argument presented has taken out of context Examiner's Final Rejection. Examiner clearly identified "labeling" as "the parameter DPijt is ascribed the value" and "each event" as "DPijt" (see Final Rejection page 3, paragraph 5, lines 7-8).

9. Applicant argues, (see page 4, 5th paragraph to page 5, 1st paragraph), that Pirim fails to teach "co-occurrence matrices from the histograms according to ... where i and j represent each possible pair of sensors". Examiner agrees.

10. About Christopher R. Wren and Srinivasa G. Rao, “Self-Configuring, Lightweight Sensor Networks For Ubiquitous Computing”. (See PTO-892 Notice of Reference Cited dated 9/27/06) teaching all contents of this application (see page 2, line 1), Examiner enquired about the exclusion of Mr. Srinivasa G. Rao as a co-applicant of the instant

application. Mr. Clifton D. Mueller, Attorney, consulted Mr. Christopher R. Wren, the Applicant, and both stated that Mr. Srinivasa G. Rao is a co-author of "Self-Configuring, Lightweight Sensor Networks For Ubiquitous Computing" and that he is not a co-applicant of the instant application.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan C. Ochoa whose telephone number is (571) 272-2625. The examiner can normally be reached on 7:30AM - 4:00 PM.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*** 7/6/07

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